SIEMENS

DIGISCAN M

SP

System Manual

Maintenance Instructions

Acquisition workstation, image reader

The Maintenance Protocol
SPB7-420.832.01.02.02
is required for these Instructions

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Page

1 General remarks 1 - 1

Safety information . . . 1 - 1
General remarks . . . 1 - 1
Laser safety . . . 1 - 1
Documents required . . . 1 - 1
Tools, meters and appliances . . . 1 - 2
General remarks . . . 1 - 2
Tools, meters and appliances required . . . 1 - 2
Important notes on inspection and maintenance . . . 1 - 3
Explanation of maintenance relevant abbreviations . . . 1 - 5
Abbreviations . . . 1 - 5

2 Check of the image reader 2 - 1

General remarks . . . 2 - 1
Half year . . . 2 - 1
One year . . . 2 - 2
Two years . . . 2 - 5
Three years . . . 2 - 6

3 Check of the acquisition workstation 3 - 1

Hardware maintenance . . . 3 - 1
Computer . . . 3 - 1
Cables . . . 3 - 1
Keyboard and mouse . . . 3 - 1
Monitor . . . 3 - 2
Barcode scanner . . . 3 - 2

4 Software maintenance 4 - 1

Acquisition workstation software update . . . 4 - 1
Checks on syngo level . . . 4 - 1
Check “messages” files . . . 4 - 1
Backup of syngo configuration data . . . 4 - 3

5 Check of the image quality 5 - 1

6 Final work steps 6 - 1

7 Changes to previous version 7 - 1

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1 General remarks

1.1 Safety information

1.1.1 General remarks

- The product-specific safety information contained in this document, as well as the general safety information must be observed.
- The general ESD guidelines must be observed.
- Pull out boards only when the unit is switched off.

1.1.2 Laser safety

- When working with an open laser, the leather gloves and laser safety glasses must be worn.
- Non-reflecting tools must be used.
- See also “Safety and Radiation Protection Guidelines” ARTD 2.

1.2 Documents required

- DIGISCAN M Quality Control Manual, SPB7-420.210.01...
- Fuji Service Manual FCR 5000MA plus, 009-058...

1.3 Tools, meters and appliances

1.3.1 General remarks

The recommended equipment meets the specifications and are suitable for the measurements and checks listed. If other devices are used, make sure that they also meet the specifications and are suitable for the listed measurements and checks.
If in doubt, contact CS Headquarters Support Center +49-9191-18 8080

The required adjustment and calibration intervals must be maintained.

Before any measurement or test equipment is used, it must first be subjected to a visual check. Damaged measurement or test equipment which can influence the accuracy of the test result may not be used.

NOTE	**All tools, meters and appliances with the exception of those marked “*”, are listed along with their specifications in the STC (Service Tools Catalogue).**

1.3.2 Tools, meters and appliances required

- Standard tool kit
- Protective ground wire tester
- Digital multimeter
- ESD equipment

NOTE	**Tools, meters and appliances required for the image quality tests are listed with the tests in the DIGISCAN M Quality Control Manual, SPB7-420.210.01... .**

1.4 Important notes on inspection and maintenance

NOTE	**If image reader service is done by Fuji, the maintenance has to be coordinated by the local Siemens office no later than 1 month prior to the inspection and maintenance of the image reader.**

NOTE	**If image reader service is done by Siemens, the spare parts or replacement parts required for maintenance should be ordered from Erlangen no later than 1 month prior to the inspection and maintenance of the image reader.**

- The inspection and maintenance of the image reader is broken down into four maintenance intervals:
  - Half year maintenance
  - One year maintenance
  - Two years maintenance
  - Three years maintenance

NOTE	**All other parts of the system are maintained on a yearly basis.**

The inspection and maintenance of the image reader should be carried out together with the Fuji Service Manual FCR 5000MA plus, chapter Preventive Maintenance.

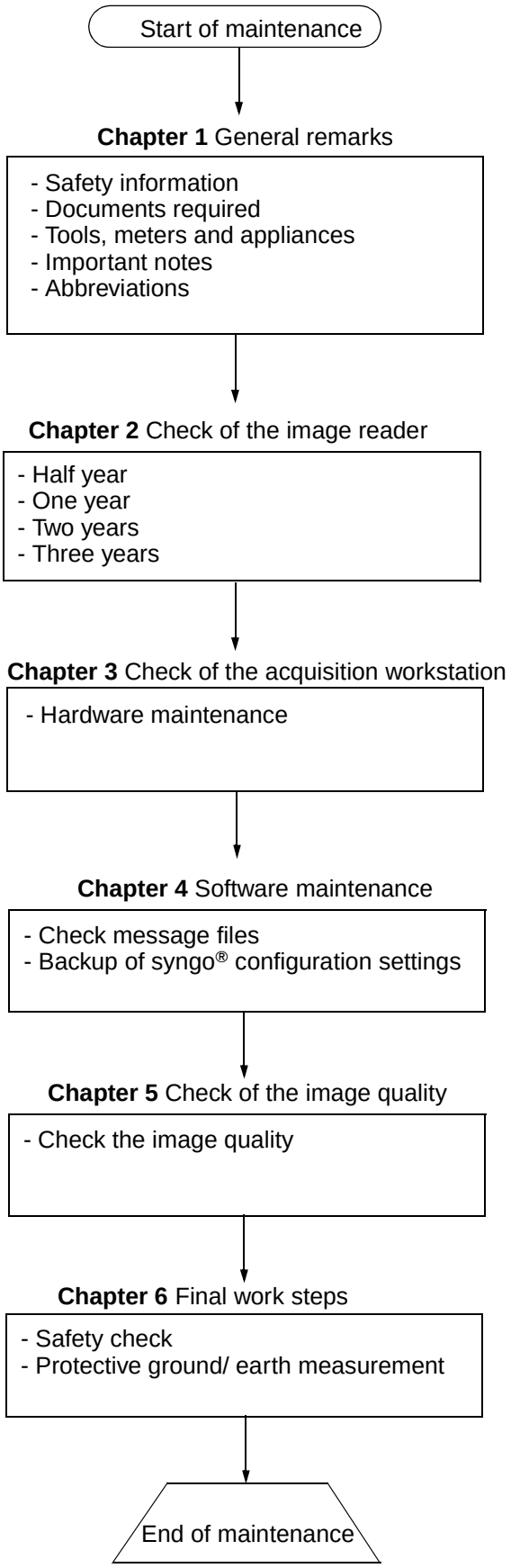
The correlation of the described inspection and maintenance work steps for the image reader to the individual points in the Checklist for Inspection and Maintenance, SPB7-420.832.01..., are indicated by the reference.

Example:

Cleaning the air filters

➪ *Checkpoint Fuji 6.*

- The complete sequence of inspection and maintenance work steps can be found on the following pages.
- For the MAMMOMAT 3000 Nova, maintenance according to the appropriate SPB7-230.101... instructions must be performed.
- For other components of the system, maintenance according to product-accompanying documentation must be performed.


Start of maintenance
Chapter 1 General remarks
- Safety information
- Documents required
- Tools, meters and appliances
- Important notes
- Abbreviations
Chapter 2 Check of the image reader
- Half year
- One year
- Two years
- Three years
Chapter 3 Check of the acquisition workstation
- Hardware maintenance
Chapter 4 Software maintenance
- Check message files
- Backup of syngo® configuration settings
Chapter 5 Check of the image quality
- Check the image quality
Chapter 6 Final work steps
- Safety check
- Protective ground/ earth measurement
End of maintenance

1.5 Explanation of maintenance relevant abbreviations

Abbrev.	Explanation
SI	Safety Inspection
SIE	Electrical Safety Inspection
SIM	Mechanical Safety Inspection
PM	Preventive Maintenance
PMP	Preventive Maintenance Preventive Parts Replacement, External Inspection, etc.
PMA	Preventive Maintenance Adjustments
PMF	Preventive Maintenance, Function Check, Operating Value Check
Q	Quality Check
QIQ	Image Quality Check
QSQ	System Quality Check
SW	Software Maintenance

The items identified by these abbreviations are contained in the maintenance certificate and should be checked off upon completion.

1.6 Abbreviations

AWS = Acquisition Workstation

CSE = Customer Support Engineer

IP = Imaging Plate

MOD = Magneto Optical Disc

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2 Check of the image reader

2.1 General remarks

The sequence of maintenance work steps can be found in the Fuji Service Manual FCR 5000MA plus.

The semi annual check should also be carried out during annual and biannual maintenance.

The same applies for the annual and biannual checks.

NOTE	**The safety information from Chapter 1 must be observed!**

2.1.1 Half year

PM Checking the error log

➪ Fuji checkpoint 2.1

PM Cleaning FD drive

➪ Fuji checkpoint 3.3

PM Deleting the error log

➪ Fuji checkpoint 13.

QIQ Checking the image

➪ Fuji checkpoint 14.

2.1.2 One year

NOTE	Also carry out half year maintenance!

PM Removing the covers

➪ Fuji checkpoint 4.

PM Turning OFF the high-voltage switch

➪ Fuji checkpoint 5.

PM Cleaning the air filters

➪ Fuji checkpoint 6.

PM Removing cassette set unit

➪ Fuji checkpoint 7.1

PM IP removal unit

Cleaning the suction cups.

➪ Fuji checkpoint 7.2

PM IP removal unit

Cleaning the rubber rollers located under the IP removal arm and shock absorber-attached guide plates.

➪ Fuji checkpoint 7.3

PM IP removal unit

Cleaning the shock absorber-attached guide plates located under the IP removal unit.

➪ Fuji checkpoint 7.4

PM IP removal unit

Cleaning the shock absorber-attached guide plates in the conveyance path of the IP removal unit.

➪ Fuji checkpoint 7.5

PM IP removal unit

Cleaning the rubber rollers.

➪ Fuji checkpoint 7.6

PM Cassette set unit

Cleaning the rubber rollers.

➪ Fuji checkpoint 7.7

PM Installing the cassette set unit

➪ Fuji checkpoint 7.8

PM Remove the erasure conveyor

➪ Fuji checkpoint 8.1

PM Erasure conveyor

Cleaning the erasure lamps.

➪ Fuji checkpoint 8.2

PM Erasure conveyor

Cleaning the cleaning rollers.

➪ Fuji checkpoint 8.3

PM Erasure conveyor

Cleaning the shock absorber-attached reflection plate.

➪ Fuji checkpoint 8.4

PM Erasure conveyor

Cleaning shock absorber-attached filter.

➪ Fuji checkpoint 8.5

PM Erasure conveyor

Cleaning shock absorber-attached guide plates.

➪ Fuji checkpoint 8.6

PM Erasure conveyor

Cleaning the rubber rollers.

➪ Fuji checkpoint 8.7

PM Erasure conveyor

Installing the lamp house assembly / shock absorber-attached reflection plate.

➪ Fuji checkpoint 8.8

PM Erasure conveyor

Installing the cleaning rollers.

➪ Fuji checkpoint 8.9

PM Installing the erasure conveyor

➪ Fuji checkpoint 8.10

PM Pulling out the scanner unit

➪ Fuji checkpoint 9.2

PM Removing the side-positioning conveyor

➪ Fuji checkpoint 9.3

PM Side-positioning conveyor

Cleaning the shock absorber-attached guide plates.

➪ Fuji checkpoint 9.4

PM Side-positioning conveyor

Cleaning the rubber rollers.

➪ Fuji checkpoint 9.5

PM Subscanning unit

Removing the light-collecting guide assemblies.

➪ Fuji checkpoint 9.6

PM Subscanning unit

Cleaning the light-collecting guide assemblies.

➪ Fuji checkpoint 9.7

PM Subscanning unit

Removing the scanning optics unit.

➪ Fuji checkpoint 9.8

PM Subscanning unit

Cleaning the light-collecting mirror.

➪ Fuji checkpoint 9.9

PM Subscanning unit

Cleaning the rubber rollers.

➪ Fuji checkpoint 9.10

PM Subscanning unit

Cleaning the shock absorber-attached center guide plate / shock absorber-attached guide plate.

➪ Fuji checkpoint 9.11

PM Subscanning unit

Cleaning the glass guide.

➪ Fuji checkpoint 9.12

PM Subcleaning unit

Installing the scanning optics unit.

➪ Fuji checkpoint 9.14

PM Subscanning unit

Installing the light-collecting guide assemblies.

➪ Fuji checkpoint 9.15

PM Installing the side-positioning conveyor

➪ Fuji checkpoint 9.16

PM Pushing in the scanner unit

➪ Fuji checkpoint 9.17

PM Turning on the high-voltage switch

➪ Fuji checkpoint 10.

PM Installing and cleaning the covers

➪ Fuji checkpoint 11.

PM Checking the date and time

➪ Fuji checkpoint 12.

2.1.3 Two years

NOTE	**Also carry out half year and one year maintenance!**

PMP Replacing the air filters

➪ Fuji checkpoint 6.

PMP Erasure conveyor

Replacing the erasure lamps.

➪ Fuji checkpoint 8.2

PMP Erasure conveyor

Replacing the cleaning rollers.

➪ Fuji checkpoint 8.3

PM Subscanning unit

Cleaning the SUS belt / rubber belt / kapton belt.

➪ Fuji checkpoint 9.1

2.1.4 Three years

NOTE	Also carry out half, one and two year maintenance!

PMP IP removal unit

Replacing the rubber rollers located under the IP removal arm and shock absorber-attached guide plates.

➪ Fuji checkpoint 7.3

PMP IP removal unit

Replacing the shock absorber-attached guide plates located under the IP removal unit.

➪ Fuji checkpoint 7.4

PMP IP removal unit

Replacing the shock absorber-attached guide plates in the conveyance path of the IP removal unit.

➪ Fuji checkpoint 7.5

PMP Erasure conveyor

Replacing the shock absorber-attached reflection plate.

➪ Fuji checkpoint 8.4

PMP Erasure conveyor

Replacing shock absorber-attached filter.

➪ Fuji checkpoint 8.5

PMP Erasure conveyor

Replacing shock absorber-attached guide plates.

➪ Fuji checkpoint 8.6

PMP Side-positioning conveyor

Replacing the shock absorber-attached guide plates.

➪ Fuji checkpoint 9.4

PMP Subscanning unit

Replacing the shock absorber-attached center guide plate / shock absorber-attached guide plate.

➪ Fuji checkpoint 9.13

3 Check of the acquisition workstation

3.1 Hardware maintenance

3.1.1 Computer

PM Secure mechanical adjustment

- Ensure that all devices are securely placed on the desktop.

PM Fans - check proper operation and direction of the airflow

- Check proper operation and correct direction of the airflow.

PM Fans - cleaning

- Clean all fans of dust.

PM Check internal cables and plugs

- Check that all cables are properly connected to the devices.

PM Cleaning

- Use a brush and vacuum cleaner to clean the computer cabinet of dust.

NOTE	**Be sure to follow the ESD guidelines.**

3.1.2 Cables

PM Check if cables are squeezed or broken

- Check that the cables are neither squeezed nor broken; if they are they must be replaced.

PM Check all external cable connections

- Check that all cables are properly connected.

PM Safe cable lay

- Check that all cables are placed in a way that no one will trip over them.

3.1.3 Keyboard and mouse

PM Keyboard - cleaning

- Use household pads to clean the keyboard of dust and residue.
- Be careful that no liquid gets inside the keyboard.

PM Mouse - operational Check

- Check that the mouse is operational. Open the mouse and clean the rolls inside the housing.

PM Mouse - cleaning

- Clean the mouse and replace the mouse pad if necessary.

3.1.4 Monitor

PM Cleaning

- Use household pads to clean the dust from the screen and housing of every monitor.

3.1.5 Barcode scanner

PM Checking the barcode scanner

- Call up **Start > Programs > Accessories > WordPad**.
- Read the projection view barcodes.

4 Software maintenance

4.1 Acquisition workstation software update

SW Installation of recommended acquisition workstation software updates

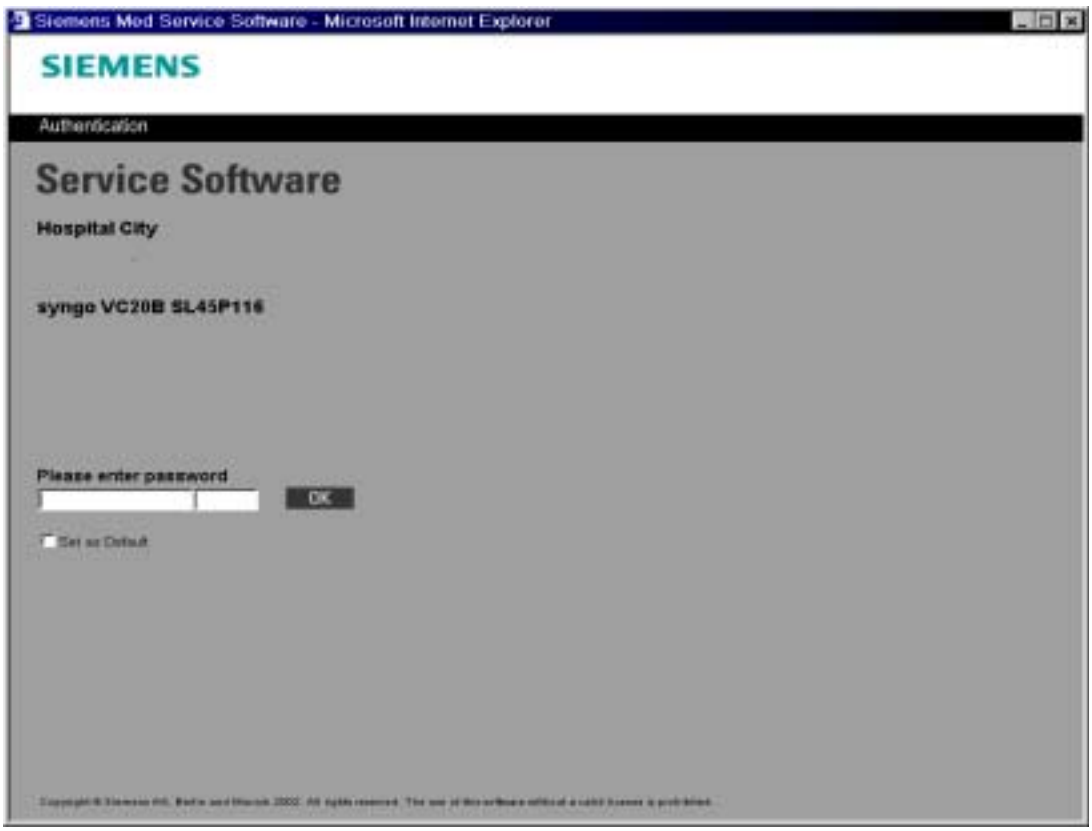
- Optional updates should only be installed on systems where a specific problem persists and where a software update would solve the problem.
- A list of solved problems can be found in the corresponding UI (Update Instruction), which is released with the software update.

4.2 Checks on syngo level

4.2.1 Check “messages” files

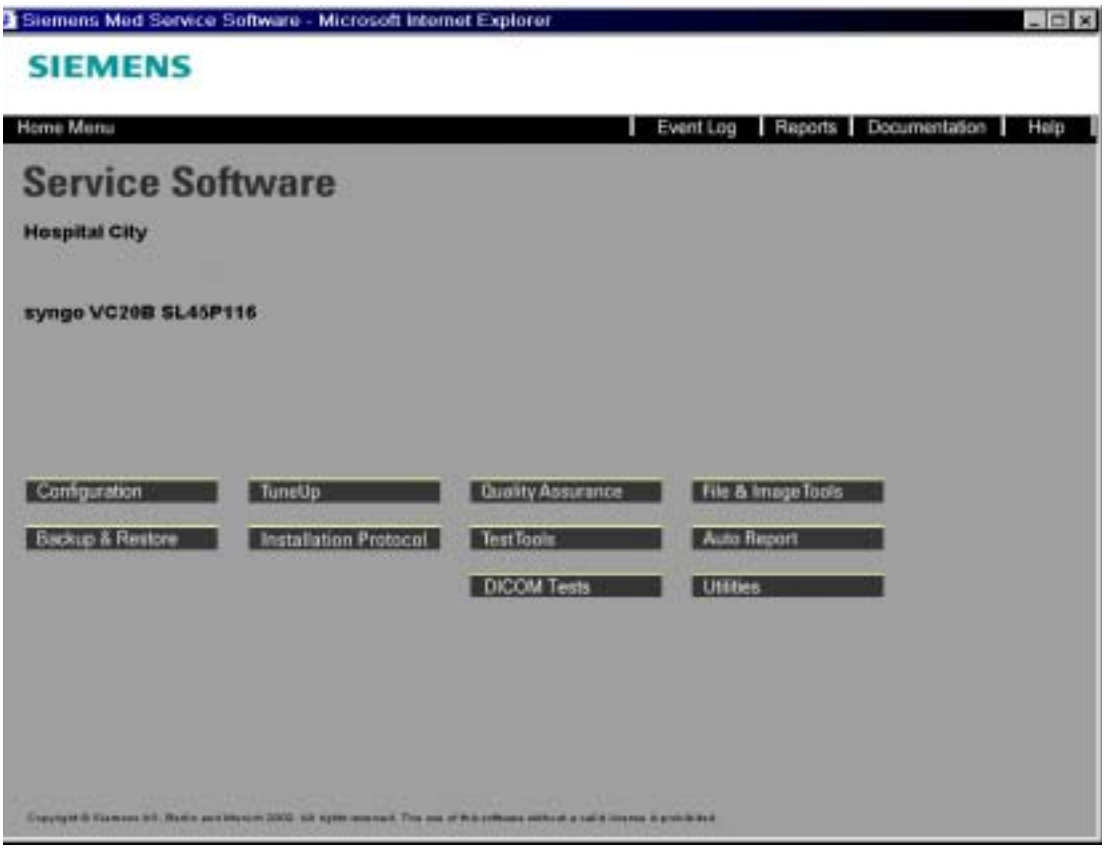
SW Check “messages” files for error messages

- Log in as “meduser”.
- Select **Options > Service > Local Service** in the window menu header.

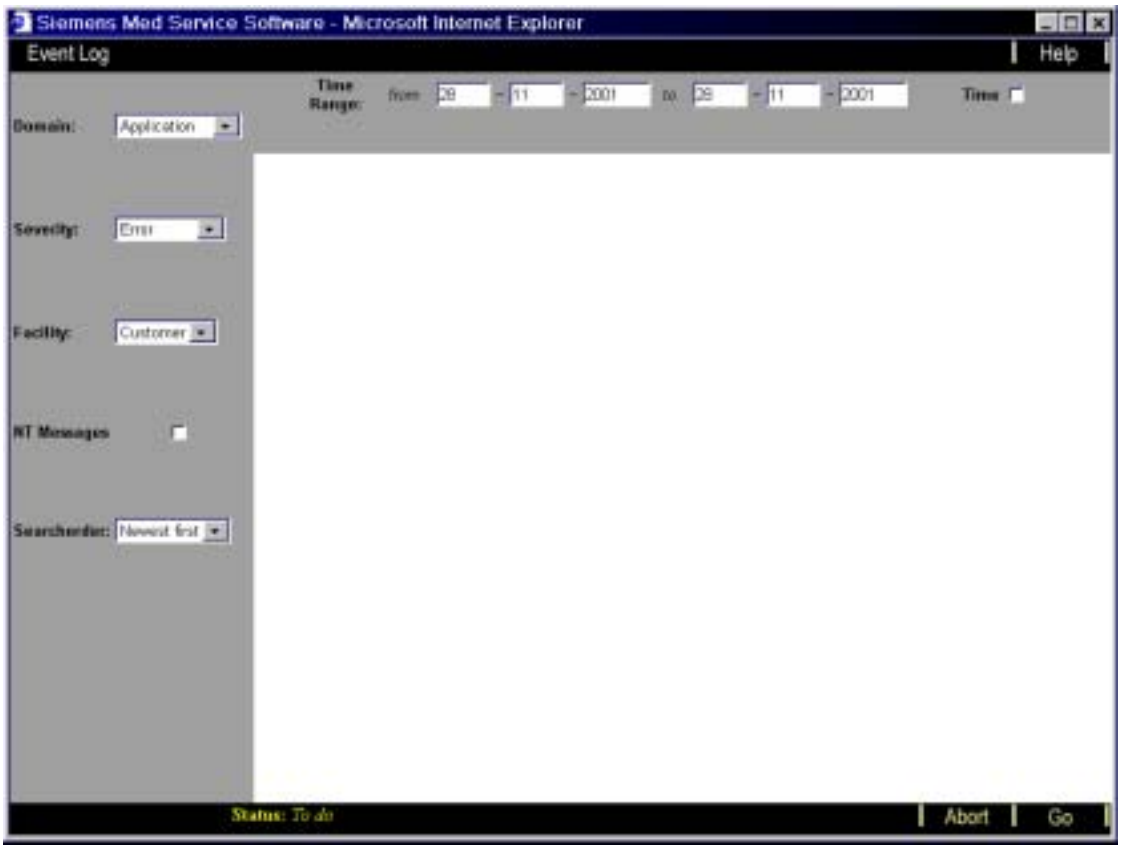


- Enter the service key (14 character in 1st mask and 6 character in 2nd mask).
- Confirm with **OK**.

The Service Home menu appears.



- Select **Event Log** in header.



- Select the appropriate eventlog file here.
- Select the period of time under consideration in **Time Range**.
- Evaluate the corresponding error messages for conspicuous features.
- Close the window by clicking in the upper right corner.

4.3 Backup of syngo configuration data

SW Backup of configuration data

- For details, please refer to DIGISCAN M Software acquisition workstation, SPB7-420.816.01... .
- Store the data on a floppy disk.

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5 Check of the image quality

QIQ Phantom image quality

- Perform the test according to DIGISCAN M Quality Control Manual, SPB7-420.210.01...

QIQ Display and print conformity

- Perform the test according to DIGISCAN M Quality Control Manual, SPB7-420.210.01...

QIQ Homogeneity

- Perform the test according to DIGISCAN M Quality Control Manual, SPB7-420.210.01...

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6 Final work steps

PM Checking the cover panels

- Install all cover panels or check them for secure seating.

PM Touch up paint scratches / chips

SI Protective ground / earth measurement

Components which can be detached from the mains cable i.e. acquisition workstation, SIMOMED monitor (option) and MOD drive (option).

- Using the protective ground wire tester, measure the resistance between the protective ground terminal of the equipment and all metallic parts of the equipment (including LCD monitor for acquisition workstation) which the patient / operator may come in contact with. The protective ground resistance must not exceed 0.1 Ω (observe local regulations).
- Measure the resistance between the ground connections of the mains cable ends. The protective ground resistance must not exceed 0.1 Ω (observe local regulations).

SI Protective ground / earth measurement

Components which can not be detached from the mains cable i.e. image reader.

- Using the protective ground wire tester, measure the resistance between the ground connection of the mains cable end and all metallic parts of the equipment which the patient / operator may come in contact with. The protective ground resistance must not exceed 0.2 Ω (observe local regulations).

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7 Changes to previous version

Page	Chapter	Change
4-1	Check “messages” files for error messages	Second step is rewritten.
4-1	Check “messages” files for error messages	Picture replaced in second step.
4-1	Check “messages” files for error messages	Picture replaced in fourth step.

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